CHNOLOGY DEPT.

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October 20, 1951

# SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE

## Heart Buttons

See Page 247

A SCIENCE SERVICE PUBLICATION

$5.50 A YEAR

VOL. 60 NO. 16 PAGES 241-256

PHYSICS

# Joint European Laboratory

**Many European countries have participated in discussions expected to lead to establishment of a joint laboratory for nuclear physics.**

➤ WHILE INTERNATIONAL cooperation on atomic energy has not been achieved, a movement is under way to establish a laboratory for nuclear physics that would be a joint European effort.

For several years, a large research laboratory with a staff of 300 and a million dollar a year budget has been in the process of formation by UNESCO (United Nations Scientific and Cultural Organization).

Equipped with a powerful accelerator of particles, called a cosmotron, that would give energies comparable to cosmic rays, this new laboratory would be a regional institution serving European countries. Many nations in Europe cannot have research laboratories of their own and they are considering pooling some of their resources to provide a joint effort.

Belgium, France and Italy have already offered to help finance the proposed nuclear physics laboratory. In addition, Sweden, Belgium, Norway, Great Britian, the Netherlands and Switzerland have participated in the discussion to lay the foundation of the new organization.

The new European Nuclear Physics Laboratory would be devoted to non-secret and non-military investigations that will be of value to all the peoples of the world, especially those of Europe.

To establish the laboratory $20,000,000 to $25,000,000 would be needed, $12,000,000 of which would be needed to build the giant accelerator of 6 billion electron volt energy, similar to the biggest one now under construction at Berkeley, Calif.

To support the European Nuclear Physics Laboratory, the participating nations would need to contribute about twice as much annually as they allot to UNESCO itself.

Those in Paris planning the new laboratory argue that the powerful particle accelerator is necessary for any program of investigation of the constitution of matter and fundamental research in chemistry, biology, medicine and the other sciences.

Research workers from different countries would work together using the same apparatus, helping each other with their problems and the bonds thus established would grow into a permanent collaboration between scientific institutions and industries of the participating countries. Specialists, of whom European countries are very short, would be trained. The construction and the activities of the new laboratory would stimulate industries in the participating countries.

The initiative for the inauguration of the new combined laboratory will need to come from the countries that will participate. UNESCO in Paris is acting as a stimulating organization and the laboratory when established would be an independent international organization.

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PHYSICS

# 700 Mile An Hour Winds

➤ WINDS MOVING at terrific speeds blow around the earth far above the highest mountains.

These winds in the upper atmosphere sometimes reach speeds of almost 700 miles an hour. They are believed to exist some 65 miles above sea level, Reynold Greenstone of the National Bureau of Standards told the joint meeting of the International Scientific Radio Union and the Institute of Radio Engineers at Cornell University in Ithaca.

Clouds shining faintly in the night sky and long-enduring meteor trails in the past have indicated the presence of these winds in the ionosphere. But rather than rely on visual observations, Mr. Greenstone used radar-like equipment to discover which direction they were going and how fast.

The winds blow with an average speed of around 150 miles an hour, the radio fading method indicated. During November and December, however, the speeds are higher, averaging around 225 miles an hour.

The ionospheric winds probably encircle the whole world, Mr. Greenstone suggested. For the same local time in Cambridge, England, and Washington, D. C., the winds are often very much the same. When G. J. Phillips of Cavendish Laboratory, Cambridge, finds that the winds are changing direction, Mr. Greenstone discovered that within that same hour the winds likewise usually change here above the United States.

Throughout the year, the winds will blow in every possible direction. There are, however, definite seasonal and daily trends.

In the summer months as a rule the winds move toward the east during the daytime and toward the west at night. In the winter, the winds blow predominantly toward the west.

In the fall and in the spring, the direction of the winds rotates from north to east to south to west and back to north again. Two complete rotations are made each day during the equinoctial months.

At sunrise and sunset these winds high in the atmosphere usually change direction abruptly. In the small hours of the morning they frequently blow south or southwest.

This world-wide system of winds is believed to be caused by solar gravitational forces and solar heating. But they are magnified many times by resonance effects.

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GENERAL SCIENCE

## Uncle Sam Tells How To Pick Baby Sitter

➤ NINTH EDITION of Uncle Sam's baby book, the best seller that has had a distribution of more than 28 million copies since 1914, is now ready for parents and prospective parents.

Called "Infant Care," this 145-page illustrated publication of the U. S. Children's Bureau gives information and advice based on the latest scientific findings. Besides details on baths, diapers and diets, there is a section on baby sitters and a reminder to be sure to have baby's birth registered.

Copies may be obtained from the Government Printing Office in Washington for 20 cents. (See p. 254.)

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NUTRITION

## More Protein Found in Pasteurized Fresh Milk

➤ PASTEURIZED FRESH milk is still slightly higher in protein content than evaporated or dried skim milk, experiments at the University of California College of Agriculture in Berkeley have shown.

Over a 16-month period, pasteurized fresh, evaporated and dried skim milk were fed to rats by Dr. Bessie B. Cook of the department of home economics.

The rats fed fresh milk gained slightly more in weight and size than those fed the other two forms, she said. This indicated a slight superiority of the fresh milk protein over that found in the other two forms.

If carefully handled, however, evaporated and powdered milks are still an excellent source of protein, Dr. Cook pointed out.

The more heat applied to milk in processing the lower the protein quality. Too much heat in processing milk was also responsible for the brownish color and off flavor sometimes found. In baking foods containing any form of milk carefully controlled temperatures prevented lowering of protein quality.

Some heat must be applied to milk, however, to kill certain disease organisms and to prevent rapid spoilage, Dr. Cook said.

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MEDICINE

# Heart Disease Prevention

**Find way to spot men who are likely to have heart attacks. Blood chemical pattern gives clues to treatment that would prevent the attacks.**

➤ DOCTORS NOW have a way to spot in advance the men who are likely to have a heart attack before they reach the age of 40.

And they have clues to treatment that might prevent it. The method of detecting men prone to heart disease was worked out in a three-year research project at the cardiac department of Massachusetts General Hospital and Harvard Medical School, Boston.

Details of it, with the hint of preventive treatment, are reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 13) by Drs. Menard M. Gertler, Stanley M. Garn and Paul D. White. Dr. Gertler is now head of the cardiac department at Francis Delafield Hospital, New York.

The study was confined to men because it was found that of 100 persons who had a heart attack under the age of 40, 97 were men and three were women. By comparing these 97 men with 146 presumably healthy men of the same age, body build, racial origin and occupation, the scientists found the points on which proneness to heart disease could be detected. They also found six possible candidates for heart disease under the age of 40 among the 146 healthy men.

The detection points cover the person's personal and family history, body build, psychological make-up and blood chemistry. Heart disease in a parent, brother, or sister points toward heart disease in the man being examined. So does a history of certain diseases such as diabetes, gout and arthritis.

Body build in which measurements are broad rather than long, such as short, broad face, head, hands, nose and stature, is one of the characteristics of the man prone to have heart disease before he is 40.

The makeup of the blood, or chemotype, must also be studied. The amount of cholesterol, uric acid and lipid phosphorus will be higher in heart-disease prone men. Even more important for detecting incipient heart disease is the ratio of these chemicals to each other.

The blood chemical pattern gave the clues to potential preventive treatment now being studied. Increasing the amount of lipid phosphorus is the most practical, the scientists state, for restoring to normal the ratio between this chemical and the cholesterol in the blood.

In addition, they are trying methods of making the walls of the blood vessels less permeable to cholesterol and its products.

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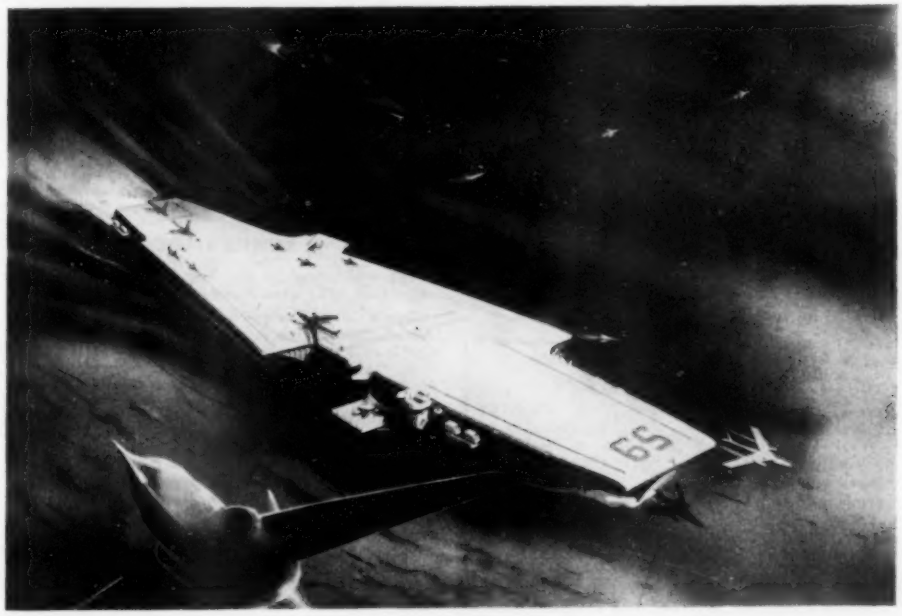

***LANDINGS BY TELEVISION—The U. S. Navy has disclosed that its new giant carrier, the Forrestal (CVB-59), will use a secret television system to help planes land on its flush deck. Planned to be bigger and better than anything afloat when completed in three years, the 59,000-ton ship will cruise at 30 knots. The huge flight deck will handle many types of planes, including those capable of carrying atomic bombs.***

GENERAL SCIENCE

## Women's R.O.T.C. Soon In Nation's Colleges

➤ A WOMEN'S R.O.T.C. may shortly be set up in the nation's colleges.

A new bill pending before the House Armed Services Committee would authorize participation by women in the R.O.T.C. program for the first time. At least one staff study has been made on the subject by the Army and it is believed that Army personnel officials are favorable to the idea. At least one college has sent in a plan for coordinating women into the R.O.T.C. program and several colleges have written the Defense Department about the idea.

The situation is about the same so far as the Air Force is concerned.

Recently WAC Commanding Officer Col. Mary A. Hallaren told a group of women in New York that the Army is planning to set up a women's R.O.T.C. as soon as the bill authorizing it is passed.

All this indicates a change in attitude on the part of the Armed Services. Several months ago, it is known, both the Army and Navy were opposed to the idea of a women's R. O. T. C., while the Air Force's attitude was described as "mixed."

Women would be integrated into training programs for the service arms such as Finance and Supply already under way in the colleges. Most R.O.T.C. programs are intended for training in the combat arms.

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ASTRONOMY

## Faint Comet Found During Sky Survey

➤ ANOTHER FAINT comet has just been discovered. It is located in the constellation Andromeda, now high in the evening sky. But this new, slow-moving object is of the 16th magnitude and thus would have to be about 10,000 times as bright to be seen with the naked eye.

Astronomer Robert G. Harrington of the California Institute of Technology and Mt. Wilson and Palomar Observatories spotted the faint object on a plate taken Oct. 3 as part of the sky survey being conducted by Palomar Observatory and the National Geographic Society. Last August he co-discovered a tenth magnitude comet in the constellation of Ophiuchus, the serpent holder.

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PHYSICS

# No A-Bomb Surge for N. Y.

➤ THE DREADED "base surge" which spread out from the Bikini underwater A-bomb explosion will not occur in temperate climates.

Speculations that a base surge could inundate New York City and leave in its wake very appreciable radioactive contamination are "unfounded from a meteorological standpoint," Air Force Col. B. G. Holzman reports in the BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY (Sept.).

"To an observer ten miles away," Col. Holzman says, "the 'base surge' was indeed a frightening and almost cataclysmic spectacle. The 'surge,' instead of diminishing with time and travel-distance, increased in horizontal extent to many thousands of feet and reached a height of several thousand feet."

But a duplication of this base surge in New York harbor might be difficult if not impossible to accomplish.

Col. Holzman explains that the base surge was dependent on the very moist tropical air mass prevailing at the time of the explosion. The surge acted as a meteorological "cold front," pushing the moisture-laden surrounding air up. This moisture then condensed, adding to the height and volume of the "surge."

The important point is, Col. Holzman believes, that the moisture in the surge in its later stages did not rise from the lagoon but was already in the air at the time of the explosion and, therefore, had little radioactive contamination.

The severest radioactive contamination, he goes on, is associated with the initially-ejected water in the familiar cylindrical column, around which the surge forms, and the plume. The contaminated rain from this source is of "greatest significance in the problem of civilian defense."

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GENERAL SCIENCE

# Draft Boards Cooperate

➤ THE COLLEGE draft deferment program is working "beautifully," according to Dr. M. T. Trytten, the man most responsible for the program. Dr. Trytten headed the Selective Service committee which drafted the plan.

The expected opposition of local draft boards to the system whereby college students who achieve a passing mark on an aptitude test or are in the upper portions of their classes are deferred has not developed, he told SCIENCE SERVICE.

In the entire state of Ohio, as an example, only two draft boards have refused to follow the rules as laid down by Presidential order—and then only in the cases of three students. These were appealed and the students are now in college.

About 213,000 students achieved marks of 70 or higher in the tests given last spring and summer. Others were eligible for deferment because of their class standings.

Dr. Trytten explained the success of the method by saying that it gives local boards yardsticks by which they can determine eligibility for deferment with impartiality.

"Local board members," he pointed out, "can now sleep nights without worrying about whether they made correct decisions in individual cases."

Reports from Minnesota and upstate New York are similar to those from Ohio, Dr. Trytten stated. There has been a little difficulty in Kansas, but that was minor.

If a student is refused deferment, he can appeal to state boards and national Selective Service headquarters. In the few cases where appeals have been necessary, he said, students with the proper qualifications for deferment under the program have been deferred.

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# Question Box

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**Photographs:** Cover and p. 250, Fremont Davis; p. 243, U. S. Navy; p. 245, Serating; p. 246, U. S. Air Force.

**SCIENCE NEWS LETTER**

**VOL. 60 OCTOBER 20, 1951 No. 16**

**The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc. 1719 N St., N. W., Washington 6, D. C., NOrth 2255. Edited by WATSON DAVIS.**

**Subscription rates:** 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

**Change of address:** Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

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Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STAte 2-4822.

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***SLUMBERING MICE—In order to insure that a mouse receives the full and correct dosage of the new, apparently harmless sleeping chemical, Dormison, it is fed orally using the catheter method. The slumbering mice will awaken at different times, in proportion to the amount of Dormison fed to them.***

MEDICINE

# New Sleeping Medicine

**Alert technician spotted mice unexpectedly taking naps. Now doctors can prescribe a sleeping medicine that is apparently safe for human use.**

➤ BECAUSE SOME laboratory mice unexpectedly took naps and an alert girl technician recognized something out of the routine, doctors now have a new, apparently safe sleeping medicine for the millions of patients bothered by insomnia.

The new sleeping medicine is called Dormison by its manufacturers, Schering Corporation. Its chemical name is 3-methylpentyne-ol-3.

Good results with it in 134 patients who previously had to take barbiturates to sleep are reported in the journal SCIENCE (Oct. 12) by Schering Corporation researchers S. Margolin, P. Perlman and F. Villani and Dr. Thomas H. McGavack of New York Medical College and Metropolitan Hospital.

Most of the patients fell asleep in less than half an hour after taking capsules of this medicine. They had a restful sleep and no "hang-over" upon awakening. A number have been given daily doses of the chemical for more than five months without any adverse effects. Laboratory tests showed no harmful changes that could be attributed to the drug.

Dormison is not a pain-reliever. It is the kind of chemical called a hypnotic, but is not related to any presently used sleeping medicines.

Its accidental discovery came about during research on the anti-arthritis remedy, cortisone. Schering chemists had isolated a fragment of the cortisone molecule which they thought might be the active anti-arthritis part of the chemical. This fragment was given to mice to test its possible toxic, or harmful, effects.

The mice immediately went to sleep. It was the kind of deep, hypnotic sleep that usually precedes their death. But to the surprise of Miss Marie Doyle, the technician who was watching them, the mice woke up, frisky and apparently rested. Miss Doyle reported her observations and the experiment was repeated. The results were the same and the Schering scientists realized that their chemical from cortisone might be a useful sleeping medicine.

Extensive testing showed that the drug is effective in inducing sleep, is apparently safe and, so far as is known from trials to date, is not habit forming.

The effects of an overdose can be counteracted by coffee, if the patient can be aroused to drink it, or by injections of caffeine.

Dormison is now available on a doctor's prescription.

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PUBLIC HEALTH

## Check Health of School Child Each Morning

➤ GIVE JUNIOR and Sister a last minute check-up before they leave for school each morning, advises the New York City Department of Health in a pamphlet for parents called School Days.

Object of the check-up is to make sure the youngsters are not coming down with some serious catching disease. If a child is in the early stages of such a disease, he should be in bed and should be seen by the doctor as promptly as possible. This is for the child's own good.

It also will help prevent the spread of the communicable, or catching, diseases. If every parent followed this precaution, every child's chance of escaping measles or diphtheria or whooping cough would be improved.

Signs to watch for in the morning check-up at home are: flushed face, or fever; running nose, sneezing, cough, red throat, "pink eye;" skin rash; sores or blisters on the skin.

If you detect any of these the child should be kept home from school, advise health authorities.

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MEDICINE

## Try Cathode Rays to Sterilize Blood Plasma

➤ STERILIZING BLOOD plasma by high energy electron rays instead of ultraviolet rays was suggested by Dr. Ernest E. Charlton of General Electric at the meeting of the Medical Society of the State of New York in Schenectady, N. Y.

Electron or cathode ray sterilization has been applied in the food industry and quite recently to sterilization of arteries for transplantation into the human body.

Advantage of the method for killing germs in plasma is that such sterilization can be done without heating the material, Dr. Charlton explained. Ultraviolet rays now used do not heat the plasma, but do not penetrate into it as deeply as high-voltage cathode rays would, Dr. Charlton stated. He believes that electron sterilization therefore would be more efficient although more work in the laboratory must be done to determine the effect of cathode rays on blood plasma.

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GENERAL SCIENCE

## "Guinea Pig Club" for Human Volunteers

➤ "GUINEA PIG CLUB" is the name given informally to a new national medical organization formed in Chicago.

Membership will be limited to those men and women, whether doctors, students or non-professionals, who have ever served in any way as "guinea pig" or human test material for research leading to better health and longer life for mankind.

The purpose of the organization is not for recruitment of volunteers but for education. Plans include meetings at which papers will be presented describing experiences and results of "guinea pig" service. Citations or some form of honorary recognition for outstanding volunteer service are also planned.

An activity of the group will be to publicize the codified rules now in effect for the conduct of experimental procedures on humans.

At the meeting of the first chapter, at the headquarters of the National Society for Medical Research in Chicago, a committee to organize the club on a national basis was appointed under the chairmanship of Dr. Anton J. Carlson of the University of Chicago.

"Walter Reed Volunteers" was selected as the formal name of the organization, honoring the volunteers who helped Walter Reed and associates discover that yellow fever is spread by mosquitoes.

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TECHNOLOGY

## Combat Soldiers Get Hot Bath by Field Sterilizer

➤ MR. COMBAT SOLDIER in Korean front areas can now get an outdoor shower bath with sterilized warm water with the aid of a mobile trailer unit that can be towed by a jeep. Any local water supply may be used.

This small size, two-wheeled trailer, total weight less than two tons, picks up water from a nearby river or tepid pond, heats it to a scalding temperature to kill germs and other organisms, cools it to a comfortable bathing temperature and delivers it to 24 shower heads for the bathers.

A gasoline engine is used to pump the water and deliver it to the shower jets. Oil is normally used for fuel for the heating unit that does the sterilization, but any type of liquid fuel can be substituted. It requires about 14 gallons of fuel an hour. The device delivers water to the showers at a rate of 43 gallons a minute. Baths are ready for use about 20 minutes after the unit is parked beside the water supply.

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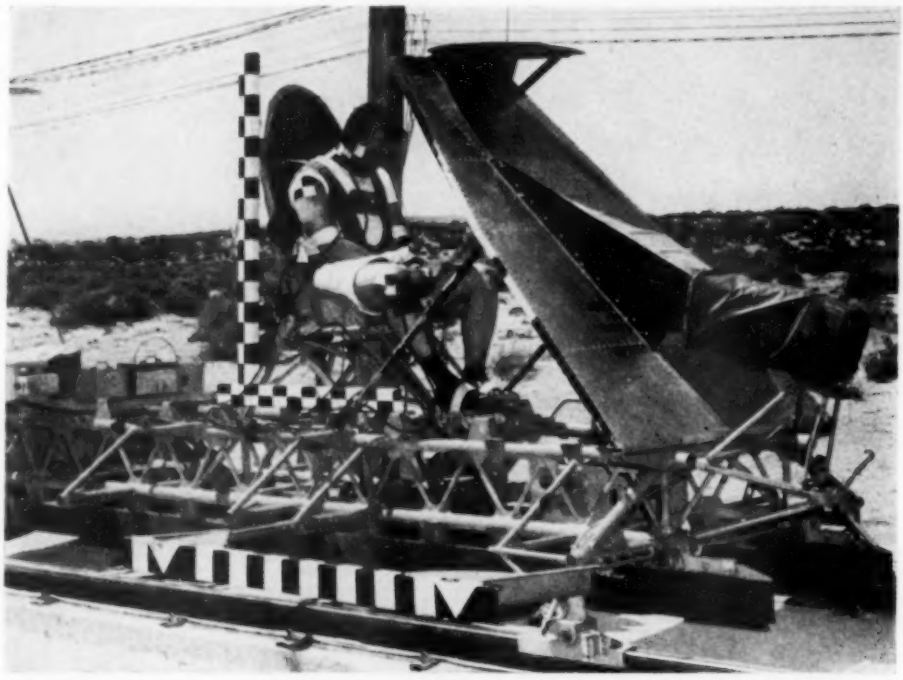

*CLUB CANDIDATE—Eligible for the newly formed "Guinea Pig Club" is Maj. John P. Stapp, U. S. Air Force, shown here just about to subject himself to gravity forces of 45 G, the highest known voluntarily encountered by a human. Maj. Stapp is strapped into a rocket-propelled decelerator sled which reaches a speed of 170 miles per hour. He is an aero-medical scientist of the Air Research and Development Command.*

AVIATION MEDICINE

# Weight Loss in Space

**"Possibility that weightlessness is followed by a kind of space-sickness which would easily incapacitate the crew of a space ship" cannot be excluded.**

➤ MAN MAY soon have to contend with a new disease—a sort of occupational ailment. This is "space-sickness."

It may come from the weightlessness to be experienced by crews of space ships.

We cannot exclude "the possibility that weightlessness is followed by a kind of space-sickness which would easily incapacitate the crew of a space ship," said Dr. Heinz Haber, of the Department of Space Medicine at the Air Force School of Aviation Medicine, Randolph Field, Tex.

Dr. Haber was one of the speakers at the symposium on space travel held at the Hayden Planetarium in New York.

Dr. Haber said that space-sickness might result when the evidence of a crew member's position that he perceives with the eye does not correspond with the evidence he perceives through the effect of position and of active and passive movement of the body. In a state of gravity, he pointed out, these correspond. Without weight, they are in disharmony.

Recent investigations, he said, have revealed that certain forms of seasickness can be induced by this disharmony.

Weightlessness is already with us, Dr. Haber pointed out. Pilots of modern, high-altitude, fast-moving planes begin to experience reduction or lack of body weight in certain maneuvers, although, so far, this has not lasted more than one minute at the most.

Space-sickness is not the only hazard crewmen who explore the heavens will have to face. Dr. Fred L. Whipple, chairman of the department of astronomy at Harvard, another symposium speaker, pointed out that meteors might pierce thin skins of space ships.

Dr. Whipple advocated "meteor bumpers" to lessen the danger from meteors. The bumpers would consist of an extremely thin outer skin, separated from the surface he said, would explode the meteor, and distribute the force over a wider area of the space ship skin.

The astronomer estimated the chances of hitting meteors in space as being one in 5,000 in a 24-hour trip.

But if the trip to Mars and back took 1,000 days, the chances of being hit by a meteor become one in five. And, further, Dr. Whipple warned, there may be many more meteors than we think.

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ASTRONOMY

## Spot Two New Sky Objects—Jupiter's Moon and a Comet

➤ TWO NEW objects have been spotted in the sky. One is believed to be the twelfth moon of Jupiter. The other is the tenth comet to be discovered this year.

Dr. Seth B. Nicholson of the Mount Wilson and Palomar Observatories in California found the supposed moon of Jupiter on photographs taken with the 100-inch Hooker telescope. Estimated diameter of the object is about 15 miles, approximately the same as the last two of Jupiter's moons, X and XI, also discovered by Dr. Nicholson.

Comet Arend, a faint object in the southeastern sky, was first spottd on Oct. 4 by Dr. S. Arend of the Royal Observatory in Uccle, Belgium. Of magnitude 14, it was then in the constellation of Pisces, the fish. It can be photographed only with larger telescopes. Word of the new visitor from space was cabled by Mlle. J. M. Vinter-Hansen of Copenhagen to Harvard College Observatory in Cambridge, Mass., clearing house for astronomical news in the western hemisphere.

Jupiter's supposed satellite has been photographed five times so far, but astronomers will not be positive that it really belongs to Jupiter until they have tracked it for about a month or until they have plotted its path through the sky. If it is the twelfth moon of Jupiter, Dr. Nicholson will rank with Galileo Galilei as the only astronomer who has discovered four of Jupiter's satellites. He found one in 1914 and two more in 1938.

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INVENTION

## Walk-In Bath Tub Is Designed for Old Folks

➤ FOR THE convenience of old people and others who find difficulty in stepping over the side of a bathtub, is a "walk-in" tub which brought patent 2,570,053 to Arthur E. Fowler and Albert Dressler, Jr., both of Elmira, N. Y.

There is a door on the side of the tub. When closed it is leak-proof. No water can be put in the tub until the door is closed, and the door can not be opened until the used water is drained out. The door is closed and opened by hand, but a float in the drain controls the mechanism.

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SURGERY

# Surgeons Button Up Hearts

**Hearts with holes in them can now be buttoned up, using nylon and lucite buttons that are halves, one of which fits inside the hole, the other snapping to it.**

**See Front Cover**

➤ SURGEONS can now button up hearts that have holes in them. The holes in such cases are in the wall dividing the two upper blood chambers of the heart, called auricles. These holes are present at birth and are probably the most common of heart malformations in young adults. They can cause a blue baby condition but are not the only cause of such a condition.

The nylon and lucite buttons for permanently closing these holes were shown by Drs. Charles A. Hufnagel, John F. Gillespie and W. Leonard Weyl, of Georgetown University School of Medicine, at the meeting of the Medical Society of the District of Columbia in Washington.

Each of these buttons is made in halves which fit together something like a snap hook. They are made slightly larger than the hole to be closed. One half is pushed through the heart hole by a special instrument, and then is pulled back so that teeth on the flat side of the button catch in the tissue of the heart's dividing wall, or septum. The other half button is then fastened to the first half, and the instrument withdrawn.

A plastic ball valve for remedying another heart condition was shown by the same Georgetown surgeons.

These plastic devices are pictured on the cover of this week's SCIENCE NEWS LETTER. Also shown is the instrument used to insert in the heart's holes. The surgically-gloved hand is that of a collaborator in Dr. Hufnagel's laboratory.

Some 200,000 persons are living today with a valve on the aorta that does not close. The aorta is the biggest artery of the body, leading directly from the heart. It opens for blood to be pumped into the body. When it fails to close, much of the blood rushes back into the heart.

This condition, called aortic regurgitation, is the fourth or fifth commonest type of heart trouble today. In order to pump blood when the aortic valve is faulty, the heart must work harder and harder.

To remedy this, the plastic ball is fastened into the aorta with nylon rings. When the blood is pumped into the big artery, the ball valve moves forward to let the blood through. But if the blood starts to rush back into the heart, the ball valve moves back and closes the opening.

The aorta sometimes balloons out in a dangerous condition called an aneurysm. The walls are thin at this point and there is danger of rupture, like a tire blowing out. Sudden death follows. To remedy this, the Georgetown surgeons may wrap a piece of plastic film around the aneurysm.

The plastic sets up irritation which leads to scarring and thickening of the aorta wall.

Or they may cut out the ballooning part of the aorta and replace it with a piece of preserved artery from another person or with a permanent tube of plastic. Sometimes they put fine stainless steel wire into the aorta to form a mesh which the blood must spray through. This reduces the pressure on the thinned wall and may lead to clots on the wall which would thicken it.

Science News Letter, October 20, 1951

MEDICINE

# Artery Hardening Clue

➤ EVIDENCE THAT cholesterol and other fatty substances in the blood will deposit in the walls of normal human arteries is reported by Dr. Sigmund L. Wilens of Bellevue Hospital and New York University College of Medicine in the journal, SCIENCE (Oct. 12).

Atherosclerosis, a particularly dangerous form of hardening of the arteries, has for some years been attributed to deposits of fatty substances in the artery walls.

Artery walls, Dr. Wilens finds, act as a filter, letting fluid through but keeping in the bore of the arteries most of the fatty material. Some of this gets into the artery wall but is stopped by the elastic tissue within the wall.

Most of the cholesterol in the blood fails to get inside the artery walls, Dr. Wilens thinks, because it is linked with large molecules of protein. The part that gets in probably is united to small protein molecules or is entirely disassociated from protein.

Dr. Wilens' experiments were made with pieces of large arteries removed within 24 hours after death from healthy young people who died suddenly in accidents. These pieces of artery were rigged as filters and serum from human blood donors and patients was filtered through.

Science News Letter, October 20, 1951

ARCHAEOLOGY

## "Oldest" Village, Dated 5,000 B. C., Has Modern Look

➤ LIFE IN the world's oldest known village was less primitive in some ways than in some parts of the world today.

Evidence of how people lived in the village of Jarmo, Iraq, some 7,000 years ago has just been brought back by Prof. Robert J. Braidwood of the University of Chicago.

About 50 mud-walled houses built in the space of a small city block housed some 300 inhabitants. Each house, which contained several rooms, had its own chimney and oven.

Two varieties of wheat and a kind of pea found in the ruins showed that the villagers knew how to raise food plants. Over 90% of bones found were of domestic animals.

The people had no tools of metal and they ate from stone vessels and from clay dishes "built in" in the mud floors.

They did not lack art. Clay figurines of animals were found and also markedly pregnant "mother goddess" figures.

Other sites explored by Prof. Braidwood's expedition were even older. Palegawra was occupied some 10,000 years ago toward the end of the Stone Age by a people who were simple hunters and collectors of wild food. Barda Balka, even older, was occupied nearly 100,000 years ago by men who had to fight for existence against now extinct elephants and rhinos. At Barda Balka were dug up the earliest tools found in geological context in western Asia. They are flint and limestone hand-axes, pebble-tools and scrapers.

Science News Letter, October 20, 1951

PUBLIC HEALTH

## Rabbit Fever Is a Danger to Hunters

➤ THOSE OF you who are going hunting this fall should remember to be on guard against rabbit fever, or tularemia. You may get it from sick rabbits but you can also get it without ever being near a rabbit.

The germs of this dangerous disease are found in other small wild animals, from field mice to opossums, squirrels, coyotes and skunks. The disease can be contracted from handling an animal sick with it and from the bite of insects which have fed on infected animals. Eating improperly cooked meat from infected animals or drinking contaminated water may also let the germs get into the body.

Hunters and trappers are not the only ones exposed to this danger. Butchers and housewives who skin and clean infected rabbits may get the disease. The germs can go through little cuts or scratches on the hands and arms and even through unbroken skin. The wise thing is to wear rubber gloves when handling the animals and if blood spatters above the gloves, wash it off quickly.

Scientific name for rabbit fever is tularemia, from Tulare County, Calif., where the disease was first discovered in 1910. It has been found in many parts of the world, from Alaska to Turkey.

The sickness starts within three to five days after the germs get into the body. Headache, chills and fever are the first signs. Weakness, loss of weight, prostration, backache, joint pains and drenching sweats mark the acute stage, which lasts two or three weeks, after which the fever drops gradually. The fever is always high, 104 to 105 degrees. Because of the weakening effect of the disease, convalescence usually takes two to three months.

Science News Letter, October 20, 1951

MEDICINE

## The Fatter the Men, More Often They Drink

➤ THE FATTER men are, the more often do they partake of alcohol, Dr. R. W. Parnell of the Oxford University department of social medicine has found. There is a significant tendency, also, for stocky men to smoke more than lean men.

Dr. Parnell has found a close relationship between how a man is built and how he behaves.

Dr. Parnell's picture of the total abstainer does not agree with the traditional emaciated figure usually drawn by caricaturists to depict teetotallers. Dr. Parnell found that the teetotaller is light of build, but usually has more than average fat in proportion to build.

Both indigestion and nervous tension, the doctor found, is much more common in men of lean and muscular build.

Delinquency, on the other hand, as previously reported by Dr. W. H. Sheldon in the United States, is more often encountered in stocky men who are muscular, but also running to fat. Dr. Parnell found the same relationship to hold true for women.

Science News Letter, October 20, 1951

TECHNOLOGY

## Better Fishing Efficiency to Fight Foreign Competition

➤ EFFICIENCY IN fishing is being investigated to rescue the New England commercial fisheries industry from competition with Canada, Iceland and Norway fishermen.

Recently organized to develop increased efficiency and safety at sea and improve fishing vessels, gear, equipment and methods, the Marine and Fisheries Engineering Institute, Hatchville, Mass., is cooperating with fishery organizations and scientists in a new program.

Science News Letter, October 20, 1951

# IN SCIEN

MEDICINE

## Electricity, Not Beefsteak, To Prevent Black Eyes

➤ SOMETHING BETTER THAN the traditional beefsteak or hot or cold compresses for black eyes has been worked out by doctors at the Veterans Administration Hospital at Northport, L. I., N. Y.

It consists of a 20-minute treatment with a very small dose of electricity. Given within an hour or so after the injury, before much blackening of the eye has taken place, the treatment gave good results in more than 40 patients. When treatment was delayed until after marked blackening had developed, the results were not so good.

Use of this electrical treatment, called galvanism, is reported by Drs. Daniel Dancik and Anthony Degroot of the VA hospital in ARCHIVES OF PHYSICAL MEDICINE (Sept.).

Science News Letter, October 20, 1951

CHEMISTRY

## New Soapless Soaps Promise Whiter Mondays

➤ "WHITE MONDAY," when dirty, gray clothes can be washed cleaner and brighter with almost no trouble at all, was brought one step nearer realization with the announcement of a new line of "soapless soaps."

Man-made non-soap cleaning agents, known as detergents, have already lightened the washday load of millions of U. S. housewives. But chemicals many times more efficient than those available now, ones that can be tailored to do specific jobs, are coming from the chemists' laboratories. Some day homemakers may be able to discard their washing machines, simply rinse out dirty clothes in cool water to get them clean.

A line of new chemicals that bring this goal closer was described to the American Oil Chemists Society in Chicago by Thomas H. Vaughn and Drs. Donald R. Jackson and Lester G. Lundsted of the Wyandotte Chemicals Corporation of Wyandotte, Mich. Trade name of the materials is Pluronics, and their principal value, the chemists reported, is that the size of the molecule can be changed to fit various cleaning jobs.

Detergents made from the new chemicals showed twice as much cleansing activity as the ordinary anionic detergent—one of the kinds now in general use—and were far superior to soap, they reported. Chemically, Pluronics are polyoxypropylene glycols. They can be made cheaply by polymerizing propylene oxide and reacting it with ethylene oxide, the discoverers said.

Science News Letter, October 20, 1951

# ENE FIELDS

INVENTION

## Basic Method of Artificial Rain-Making Now Patented

➤ MODERN ARTIFICIAL rain-making may not be patentable but the method of forming crystals of ice in supercooled clouds by the use of particles of dry ice dropped through them, thus causing precipitation, brought a patent to the inventor.

Patent 2,570,867 was issued to Dr. Vincent J. Schaefer of Schenectady, N. Y., to whom much of the credit for modern artificial rain-making is given. Patent rights are assigned to General Electric Company under whose sponsorship the experimental work was carried out.

Supercooled clouds, which may have a temperature as low as 38 degrees below zero Centigrade, contain much water but often snow crystals do not form due to the lack of nuclei. Small pellets of dry ice, solid carbon dioxide, with a temperature of about minus 78 degrees Centigrade, create zones of low temperatures as they drop from an airplane through the cloud, causing ice crystals to form spontaneously.

As the crystals grow, the larger ones fall as precipitate. The smaller ones grow larger at the expense of the surrounding vapor and droplets of supercooled liquid. Under certain circumstances crystals collide and break, setting up a chain reaction effect which may lead to the development of even greater numbers of ice nuclei than those originally produced by the initial use of the solid carbon dioxide.

Science News Letter, October 20, 1951

ACOUSTICS

## Noise Determines Building Architecture

➤ WHAT TO DO about noise, coming from both outside and in, may well have to be the starting point for architects in designing buildings.

The shape of the building and the materials from which it is built may be the first consideration in its planning, Benjamin Smith, New York architect, told the National Noise Abatement Symposium in Chicago.

Warning against "slavish" use of theoretical forms devised by acousticians—scientists specializing in noise and hearing problems—Mr. Smith said, "We have on occasion rejected some of the weird forms suggested to us by acoustical consultants."

Seemingly simple problems in noise abatement, he said, sometimes are really difficult, and often, the reverse is true. He cited the problem of designing an engine testing room so the noise would not penetrate outside the room, so it would be bearable to to the operator inside the room and, at the same time, so the operator could test the performance of the motor by its sound. Because the conditions were well stated, results in design were readily obtained.

On the other hand, quieting a general office space where telephones, business machines and typewriters are the noise sources, is sometimes a more difficult job.

The symposium was sponsored by the Armour Research Foundation, the Acoustical Society of America, the National Research Council and the National Noise Abatement Council.

Science News Letter, October 20, 1951

INVENTION

## Same Machine Cuts Grass, Clears Sidewalk of Snow

➤ THE SAME machine can be used to cut the lawn in summer and remove snow from the sidewalks in winter with an invention on which patent 2,566,724 was awarded to John P. Heil, Melrose Park, Ill. It is a four-wheel affair, powered by a gasoline engine but guided by hand, with the cutter device at the forward end.

The rotating blades that cut the grass are much like those on ordinary lawn mowers. Grass cut is driven toward the rear to be held in a receptacle or discharged to the side. As a snow plow, the same rotating blades gather in the snow, and the snow can be held in the receptacle or discharged to the side.

Science News Letter, October 20, 1951

GENERAL SCIENCE

## High Altitude Laboratory Is Nearing Completion

➤ THE U. S. will have another high altitude research station in operation before winter sets in, Navy officials in San Francisco have announced.

Located at 12,500 feet on White Mountain in the White Mountain range of central California, it will be the second highest laboratory in the country. Only the Mount Evans Laboratory near Denver, Colo., at 14,156 feet, is more loftily situated. The buildings, now being rushed to completion, will offer facilities for specially trained scientists, from astronomers to zoologists, to do their research work all year round at high altitudes.

The laboratory is being built by the University of California at Berkeley under contract from the Office of Naval Research. Plans are being considered for a building at the summit, 14,256 feet above sea level. A lower laboratory, at 10,000 feet, has been the main operating base for the scientists and students building the nearly-completed upper laboratory.

Science News Letter, October 20, 1951

AERONAUTICS

## New Fast Giant Cargo Plane Converts to Troop Transport

➤ FLYING FREIGHTERS for the armed services, now under order, will be of the family of the four-engined Lockheed Constellations, will have a maximum take-off load of 130,000 pounds and can be quickly converted from cargo carriers to 106-passenger troop transports or to carry as many as 73 litter patients.

This triple-duty military plane will be used both by the Air Force and the Navy. The planes will be sister ships of Lockheed's new five-cent-a-ton-mile all-cargo Super Constellations, recently introduced to commercial airlines. However, they will be faster than commercial models, which are rated at 315 to 335 miles per hour.

Their main cabins will be 82 feet long, more than twice the length of a standard freight car. Cargo capacity will range from 40,000 to 43,000 pounds. They will be powered with four Wright 3250 horsepower compound engines. They will be the first military or commercial transports to use this type of engine in which an exhaust turbine helps spin the propellers.

Science News Letter, October 20, 1951

PHYSICS

## Radioactive Objects Behind Concrete Wall Safely Studied

➤ A COMBINATION of horizontal and vertical holes through the three-foot concrete wall behind which are radioactive materials provides a safe way in which the deadly objects may be studied by microscope, and photographed, at the Knolls Atomic Power Laboratory in Schenectady, N. Y. The Laboratory is operated for the government by General Electric.

Horizontal holes enter the wall on each side but at different levels. They are connected at their inner ends with a vertical hole in which a periscope with mirrors is fixed. Two such combinations are provided. Strong light goes through one, assisted by lenses, illuminates the radioactive material and brings the image out the other into a microscope for examination or photographing.

This arrangement permits light for illumination to pass through the wall, and the light giving the image to return, but blocks the passage of the dangerous radiation from the radioactive material under study. Handling materials within the chamber and bringing them into focus for study are done by remote control, permitting researchers to work in complete safety.

The entire assembly of a special microscope for examining the structure of metals, the camera, periscopes and illuminating system was worked out jointly by scientists and engineers of General Electric and the American Optical Company.

Science News Letter, October 20, 1951

MEDICINE

# Spare Parts for Human Body

**Unromantic but lifesaving mechanical hearts, freeze-dried bones, living bits of nerves and arteries, and hormone chemicals are now available for patching humans.**

By JANE STAFFORD

➤ TO JOIN store teeth and wigs, standard replacements on the human body since Grandpa's day, science now adds heart, lungs, kidneys, stomach, eyes, bones, nerves and even blood and the arteries it courses through.

No one, to be sure, is running around with an artificial heart beating in his body. But mechanical hearts, unromantic as they seem, may keep the human body and brain alive until the real heart has been repaired.

The same goes for the artificial kidneys —bulky devices of glassware, tubing, pumps and control dials. They can take over temporarily the waste removal job that has become too much for the natural kidneys in some sicknesses. Once the crisis is past, the mechanical kidney is disconnected and the patient's own go back on the job.

Modern replacements for parts of the human body are not all mechanical and temporary devices. Some are living bits of tissue donated as blood is donated. The cornea, transparent structure in the front of the eyeball that gives new sight to a blinded eye, comes from another human eyeball and is a permanent replacement.

So are the slivers and larger pieces of bone and the bits of nerves and arteries used in repair jobs on the human body.

### Insulin Replaces Chemical

Between the mechanical heart or kidney and the nerve or other tissue graft lies still another type of replacement to keep human bodies alive and functioning effectively. The diabetic who takes insulin is getting replacement treatment, replacement of the chemical that his own glands fail to make.

Sex gland replacement can be accomplished in the same way, by medically prescribed doses of hormone given to young men who have lost their sex glands through surgery or disease. Chemical replacement of this type is also made in some cases to cushion the changes of middle age brought on by the ending of the functioning of these glands.

Adrenal gland extract keeps patients of once always fatal Addison's disease alive by replacing the chemical the patient's sick glands have stopped making.

Even cortisone and ACTH which can restore pain-free motion to arthritic joints seem to be replacements, since their effect wears off and the patient relapses when the hormone medicines are stopped.

Replacement for blood that has been lost must be made with blood, whole red blood from the veins of another man or woman. But when blood is needed as a medicine to fight shock and tide the patient over, various other fluids can be used. These include plasma which is the fluid part of blood, a solution of a special kind of animal gelatin, a sugary chemical called dextran, and a synthetic chemical called polyvinyl pyrrolidine or PVP for short.

Success in making many of these replacements which are rapidly becoming standard depends in large part on being able to keep the replacements. Whole blood can be kept for 21 days in a refrigerator. After that chemical changes rapidly break down the vital red blood cells, though the plasma and its valuable constituents can be salvaged for some uses.

But to keep the transparent cornea of a human eye or a bit of nerve or skin or bone alive and germ-free so that it can be put into another body ready to take up life and function in its new location requires many special techniques. And when you want to ship the live replacement half way round the world, for use in a wounded soldier, sailor or Marine, the problem is even more complicated.

Scientists at the National Naval Medical Center in Bethesda, Md., have solved the problem for bone replacements. They now have a mobile bone bank. Bones in bone banks of the past have been made of frozen bones which had to be kept frozen until the surgeon was ready to use them. The Navy scientists found that bones could be preserved by the freeze-drying methods used for preserving blood plasma. In this state they can be packed in a light, small cardboard carton and shipped without refrigeration. Besides this weight and space-saving advantage, the freeze-dried bone keeps longer than frozen bank bone.

Bones preserved by this method are not live bone. But when grafted they act as a strut or trellis until the body can form its own bone.

Experiments with freeze-drying for preserving arteries at room temperatures are also underway.

A new method of storing skin for grafting has also been developed by the Navy scientists with cooperation from scientists at

*SKIN BANK—Specially preserved skin is kept in jars in the refrigerated skin bank at the Naval Medical Center, Bethesda, Md. The pieces of bone in the tubes in the rack and the bit of artery in the tube the man is holding are freeze-dried and can be kept at room temperature.*

the U. S. National Institutes of Health. The old method was to store it in pliofilm. With the new method it is stored in a liquid made of balanced amounts of salt and blood plasma with penicillin and streptomycin added to prevent growth of germs. This will keep at icebox temperatures for as long as 187 days. Pliofilm-stored skin kept at icebox temperatures only 21 to 28 days.

Latest advance reported in human tissue bankkeeping applies a cathode ray food sterilization method to sterilization of arteries for grafting. If the tissue is frozen it will not be damaged by the high voltage rays that kill the germs.

Though you may walk on freeze-dried shin bone, see through the cornea of another's eye, and have your blood run through a piece of donated artery stitched to your own while a mechanical heart and lung kept you alive on the operating table, the chances of your ever thinking with a brain replacement seem very slim. Mechanical brains, so-called, have been made and are in operation in countless laboratories and offices now. But they remain purely mechanical aids, computing machines that speedily perform numerical calculations. The fragile cells and complex fluids that make up man's brain may always defy the attempts of the best human minds to duplicate or transfer them.

Science News Letter, October 20, 1951

RADIO

# Outbursts of Solar Noise

**When solar noise outburst is picked up with radio telescope, checking shows, almost without exception, that a solar flare occurred at the same time.**

➤ "WHEN AN outburst of solar noise is picked up with a radio telescope, almost without exception we find upon checking back with observatories that a solar flare occurred at the same time as the radio outburst," Dr. J. P. Hagen of the Naval Research Laboratory told members of the International Scientific Radio Union and the Institute of Radio Engineers meeting at Cornell University in Ithaca, N. Y.

The Laboratory's two-foot basket-shaped reflector was used for the observations. This radio telescope trapped waves about a third of an inch long, much longer than the waves of visible light which you see or photograph, but much shorter than the radio frequency to which you are accustomed.

A radio outburst is a tremendous increase in the amount of radio radiation the sun is putting out for a short period of time, for a few minutes up to 20 minutes. The outburst Dr. Hagen reported occurred at the shortest wavelength at which such radio outbursts have been detected.

Another report on the correlation between what can be seen and what is heard with a saucer-shaped radio telescope was given by Dr. Helen W. Dodson of the McMath-Hulbert Observatory of the University of Michigan and Leif Owren of Cornell University's School of Electrical Engineering, on leave from the Institute of Theoretical Astrophysics, University of Oslo. Their work was with radio waves of greater length than those trapped at the Naval Research Laboratory.

When there is a flare on the sun and a small region on the sun's disk shows an intense brightening, the amount of solar noise picked up with the Cornell radio telescope at a frequency of 200 megacycles frequently is also greatly increased, Dr. Dodson stated.

"Not only does the outburst of solar noise occur simultaneously with the visual and photographic brightening of the flare, but the location on the sun of the source of the radio outburst agrees with the observed position of the flare," she reported.

Studying 14 periods during the past year or so when there was increased burst activity on the radio records, Dr. Dodson and Mr. Owren found that the location on the sun of the source of the radio bursts agreed well with the position of solar regions observed and photographed as active at the McMath-Hulbert Observatory.

In several cases the burst source was observed on successive days and found to move westward across the sun's disk at the usual rate of rotation, they found. Thus the active regions that even last for weeks in the neighborhood of certain spots can be heard at 200 megacycles as well as the more intense but shortlived solar flares, Dr. Dodson pointed out.

Radio telescopes today are not perfected to the point where they can pinpoint the source of 200-megacycle "noise," Dr. Dodson noted. But if the bursts or increased base level originate in small, localized areas on the sun, it is possible to establish this fact by use of the interferometer.

On the Cornell radio telescope Mr. Owren used two broadside antennas placed with their centers 51 wavelengths apart on an east-west line. This interferometer not only showed that the increased radio noise came from small regions on the sun, but also indicated the strip of the solar disk within which the radio source was located.

Science News Letter, October 20, 1951

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PHYSICS

## 100 Lb. Electronic Brain to Control Automatic Factory

➤ A "baby brain," an all-electronic computer that is very small and compact, has been revealed by the Jacobs Instrument Company of Bethesda, Md.

About the size of a table model television set, it weighs around 100 pounds, solves problems fed to it with 300 tiny tubes no larger than those used in hearing aids. It can add and also multiply at a very fast clip, getting the answer for addition of two 24-digit numbers in eight millionths of a second.

Its main value, the inventor, Donald H. Jacobs, claims will be in the automatic factory. There it can continuously work out problems involving such things as temperatures, pressures and quantities of materials, then adjust valves, motor controls, etc., to the settings necessary for maximum production of the desired item, he states. The machine could even be set up to order new materials when needed.

Another projected use for such an instrument, Mr. Jacobs says, is as a small and relatively inexpensive computing machine, simple to operate, for general office use. Once the machine is set up to handle a given type of problem, it would be quite easy for anyone to feed the problem into, and get the right answer from, the machine.

Science News Letter, October 20, 1951


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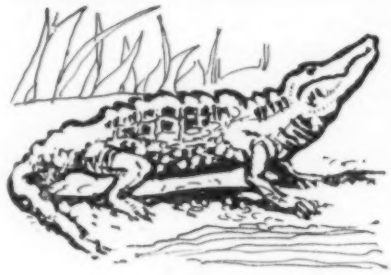
ZOOLOGY

## NATURE RAMBLINGS



**Alligators**

➤ WHAT BETWEEN handbags and shoes and shooting just for fun, the native supply of these interesting reptiles is rapidly diminishing, and only in the Everglades and in some of the wilder regions of the Gulf Coast can one any longer find the 12-foot "granddaddy 'gators" once boasted by every southern river. Six-footers are still fairly common, however, and four-foot adolescents are thick as sparrows.

But no one need dread to go about on river sides in the South for fear of being knocked into the water and devoured by an alligator. Authentic cases of attack on human beings by these creatures, formidably jawed and toothed though they are, are even more rare than attested instances of man-eating sharks in American waters.

Alligators are for the most part content with smaller game; incautious fish, turtles, ducks that mistake their still forms for floating logs, and foolish pigs that venture out into shallows.

But alligators are not merely animate inventions of the powers of darkness and evil, designed for the discomfiture of the seeker for climatic paradises. They have their useful work to do. In addition to being scavengers wherever they happen to live, in the flood-menacing and levee-guarded rivers of the South, they are policemen as well.

Bank-burrowing aquatic animals, especially muskrats, constantly endanger the protecting embankments with their mining, and alligators as constantly keep their numbers down. For this reason, the people of Mississippi, Louisiana and other southern states desire the protection of the alligator; and the old custom of taking potshots at the floating reptiles from the decks of passing boats is being discouraged.

Whether you see "tame" alligators at an alligator farm, or with luck, a real out-of-door 'gator in a pond or river, they may give you a mild case of the "creeps," for they seem to belong to an earlier and crueller age of the earth. You sometimes hear the remark, "descendants of the dinosaur."

Alligators are not descended from the dinosaurs, though they are cousins to them. The dinosaur line died out completely, leaving the honor of being the largest reptiles to the crocodiles and alligators, which were the lesser people of the swamps of Tertiary time.

Alligators are pretty strictly an American institution. They are distinguished from their Old-World relatives the crocodiles, by a number of features. But crocodiles are not strictly Old-World beasts. There are crocs in South America and even the tip of Florida occasionally yields up an authentic crocodile.

A Southern delicacy that not many people have the chance to try is 'gator-tail steak. Running down the length of the tail, around the spinal column, is a thick cylindrical column of muscle. When an alligator is killed for his leather, the hunters frequently cut out a section of this, slice it into suitable thicknesses, and broil it over a swampwood fire—first-class eating, so it is reported.

Science News Letter, October 20, 1951

RADIO

## Short Wave Radio Forecasts Made Specially for Pacific

➤ A SECOND forecasting center has now been set up for "radio hams" and others using short wave radio frequencies. From Elmendorf Air Base, Anchorage, Alasaka, twice each week will come forecasts as to whether during the next 25 days short wave broadcasts crossing the North Pacific will get through clearly, or be disturbed by weak signals and fading, and possibly blackouts.

Radio forecasts tailored to meet North Atlantic conditions have been made by the National Bureau of Standards from its Washington headquarters for about a decade, and on Oct. 2 its North Pacific Radio Warning Service became available. Advance forecasts can now be obtained by mail from the forecasting center. Later in the year the Bureau expects to begin making North Pacific forecasts daily or even more often.

Science News Letter, October 20, 1951


**YOUR SKIN AND ITS CARE**

By H. T. Behrman, M.D., and O. L. Levin, M.D.

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MEDICINE

# Sex Hormones for Diabetes

➤ THE POSSIBILITY of curing some cases of diabetes that are not too severe is suggested by experiments reported by Dr. Bernardo A. Houssay, Nobel Prize winner and director of the Institute of Biology and Experimental Medicine, Buenos Aires, in the BRITISH MEDICAL JOURNAL (Sept. 1).

Female sex hormones might be the medicine that produces the cure, it appears from Dr. Houssay's experiments with rats.

Insulin, of course, is standard treatment for diabetics which keeps them alive and well. This is the hormone from the islets of Langerhans in the pancreas. In diabetes these islet tissues have degenerated and no longer produce enough insulin to handle starches and sugars. But insulin is not a cure. It is replacement treatment, which must be taken continuously throughout life in most cases of diabetes.

The female hormone treatment, if it works in humans as it does in rats, would constitute a cure because it would stimulate any existing islets of Langerhans to produce more insulin and would in addition stimulate production of new insulin-producing cells in the pancreas.

This actually happened in the rats Dr. Houssay experimented on.

Clue to the possible female hormone treatment of diabetes came when he removed part but not all of the pancreas of the experimental rats. The females got diabetes less often than the males. Further experiments showed this was due to a protecting action of the ovaries and the hormones they produce.

"It is difficult to say yet how far this action occurs in other species and I would rather not discuss now whether or not it occurs in man," Dr. Houssay states in his report.

But he goes on to say: "The probability of preventing some forms of experimental diabetes, and even of curing a certain proportion of cases of not too severe diabetes certainly exists."

He believes it worth while to continue this line of investigation using the female hormones over long periods, perhaps combined with insulin, in order to prevent or treat other types of experimental diabetes "and eventually human diabetes."

Other substances which have no female hormone effect but which do stimulate growth of insulin-producing islet cells should be looked for, he stated.

Science News Letter, October 20, 1951

METEOROLOGY

# No Rain-Making Curbs

➤ THE $3,000,000 rain-making industry will be allowed to operate and grow for the next two years without control or licensing, if a bill just introduced into Congress by nine Senators passes.

The bill, result of hearings on rain-making held earlier in this Congressional session, steers clear of all control measures, although the American Meteorological Society has declared that licensing by the Federal government is necessary now.

The bill would set up a temporary committee, to last two years, to coordinate all information about rain-making and to authorize research and experiments by four government agencies, including the Weather Bureau. Sitting on the committee would be the Secretaries of Defense, Agriculture, Interior and Commerce and five public members. The committee will be expected to come up with suggestions for permanent legislation. Earlier bills, now discarded, had suggested a weather control commission with powers similar to those held by the Atomic Energy Commission.

Meantime, the American Meteorological Society has called for Federal legislation "to insure a reasonable degree of control of operations designed to modify the weather and to protect the public from unqualified operators." The weathermen also believe that control would be necessary in order to carry out large-scale experimentation in rain-making.

In presenting its opinion, the A. M. S. pointed out that it had already recorded its belief that "there is little evidence and no present scientific basis for the belief that man is able to exercise" large-scale control over the weather.

Sponsors of the rain-making bill just introduced are pointing it toward passage next year. Meantime, the Weather Bureau is planning to make a survey of rain-making in 17 western states.

Science News Letter, October 20, 1951

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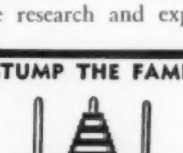

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# Books of the Week

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THE ADVANCEMENT OF SCIENCE, Vol. VIII. No. 30—*British Association for the Advancement of Science*, 146 p., paper, 6 s. This issue contains the presidential address of the Duke of Edinburgh on the British Contribution to Science and Technology in the Past Hundred Years and addresses by presidents of sections.

THE APE IN OUR HOUSE—Cathy Hayes—*Harper*, 247 p., illus., $3.50. The laughable and interesting experiences of the author who adopted a baby chimpanzee and brought her up as a daughter. Viki wore a baby's garments except for shoes which just do not fit a foot with a toe like a thumb on the side. With great difficulty she was taught to speak a few words.

APPLIED ANATOMY FOR NURSES—E. J. Bocock and R. Wheeler Haines—*Williams and Wilkins*, 320 p., illus., $3.50. A practical, abundantly illustrated book for student nurses.

ARTHRITIS AND THE RHEUMATIC DISEASES—Philip Lewin—*McGraw-Hill*, 175 p., $3.50. Written by an outstanding authority for the information of the public. ACTH and cortisone, however wonderful, are not cures, he indicates, and the only preventive is to choose your ancestors wisely.

AUTOMATIC TRANSMISSIONS—W. K. Toboldt, C. Ray Strouse and William J. Williams—*Laurel*, 248 p., illus., $4.00 Help for the automotive repair man in working on these popular transmissions.

BIBLIOGRAPHY OF STUTTERING—Charles R. Elliott—*Book Box*, 153 p., paper, $2.25. A tentative edition listing all material alphabetically by author.

A DRAGON APPARENT: Travels in Indo-China—Norman Lewis—*Scribner's*, 317 p., illus., $4.50. A British novelist takes the reader on a trip through this now very important part of the world.

FAUNA OF UPPER VALE AND CHOZA: 1-5—Everett Claire Olson—*Chicago Natural History Museum*, 40 p., illus., paper, 60 cents. Freshwater fishes, amphibians and reptiles from the rocks of Texas.

FIRE BEHAVIOR IN NORTHERN ROCKY MOUNTAIN FORESTS—J. S. Barrows—*Northern Rocky Mountain Forest and Range Experiment Station*, 102 p., illus., paper, limited number free upon request to publisher, Missoula, Mont. A manual describing the most important factors influencing the ignition, rate of spread and general behavior of fires based on analysis of actual blazes.

GEM- AND LITHIUM-BEARING PEGMATITES OF THE PALA DISTRICT, SAN DIEGO COUNTY, CALIFORNIA—Richard H. Jahns and Lauren A. Wright—*California Division of Mines*, 72 p., illus., paper, $2.50. In this region gem stones are mined by the thousands of tons.

THE GOLDEN NEMATODE OF POTATOES—B. G. Chitwood—*Govt. Printing Office*, USDA Circular No. 875, 48 p., illus., paper, 20 cents. Measures for defense against this the most difficult of all plant pests to control and one which it is impossible to eradicate.

GLOBAL EPIDEMIOLOGY: A Geography of Disease and Sanitation, Volume Two, Africa and the Adjacent Islands—James Stevens Simmons and others—*Lippincott*, 652 p., illus., $15.00. Work on this book was started with the idea of assembling information about sanitary conditions in the parts of the world where American troops might be sent, but the work has since become global.

INFANT CARE—Marion L. Faegre and others—*Govt. Printing Office*, Children's Bureau Publication No. 8, 9th ed., 145 p., illus., paper, 20 cents. A new edition of the famous best-seller for parents. Here you will find all sorts of useful information on the care and training of the infant and on how to make life enjoyable for both the baby and you. (See p. 242.)

INSECT NATURAL HISTORY—A. D. Imms—*Blakiston*, 317 p., illus., $5.00. If these beautiful and interesting creatures are your hobby, you will enjoy this lovely work about the insects of England.

THE LIFE OF THE SPIDER—John Crompton—*Houghton Mifflin*, 254 p., illus., $3.00. Telling interesting and novel things about a familiar group of creatures.

MAKING AMERICAN CHEDDAR CHEESE OF UNIFORMLY GOOD QUALITY FROM PASTEURIZED MILK—Harry R. Lochry, George P. Sanders, James P. Malkames, Jr., and Homer E. Walter—*Govt. Printing Office*, USDA Circular No. 880, 39 p., illus., paper, 20 cents. An old art has now become a science, insuring uniform quality and healthful standards.

MANUAL OF BACTERIAL PLANT PATHOGENS—Charlotte Elliott—*Chronica Botanica*, 2d rev. ed., 186 p., illus., $6.00. Bringing up to date all available information on the bacteria which cause plant diseases.

MANUFACTURING EQUIPMENT AND PROCESSES—Charles W. Lytle and Arthur F. Gould—*International Textbook Company*, 3d ed., 759 p., illus., $6.50. The earlier editions, published under the title "Factory Equipment," have been so completely re-written that this is virtually a new book covering the many recent developments.

A NEW RANID FROG (*Staurois*) FROM THE COLONY OF HONGKONG—Clifford H. Pope and J. D. Romer—*Chicago Natural History Museum*, 4 p., illus., paper, 10 cents. Previously undescribed.

NEW SPECIES AND NEW RECORDS OF FISHES FROM BERMUDA—Loren P. Woods and Robert H. Kanazawa—*Chicago Natural History Museum*, 16 p., illus., paper, 20 cents. The majority were found during the course of cataloguing the collection made by Louis L. Mowbray, former director of the Bermuda Aquarium.

NON-MARINE SHELLS FROM BORNEO: Collected by the Borneo Zoological Expedition, 1950—Fritz Haas—*Chicago Natural History Museum*, 6 p., illus., paper, 15 cents.

NOT BY A LONG SHOT: Adventures of a Documentary Film Producer—Margaret Cussler—*Exposition Press*, 200 p., illus., $3.00. Two young women set out to make a documentary film along Tobacco Road and found much to amuse them in their experiences along the way.

NOTES ON SOME PERUVIAN BIRDS—Melvin A. Traylor, Jr.—*Chicago Natural History Museum*, 9 p., paper, 10 cents.

OFFERINGS AND ENROLLMENTS IN HIGH-SCHOOL SUBJECTS—Mabel C. Rice and others—*Govt. Printing Office*, Office of Education Biennial Survey of Education 1948-50, 118 p., paper, 30 cents. In 1949, about 68.3% of the pupils attending junior high schools and 52% of those in regular and senior high schools were enrolled in science subjects.

PARASITIC ANIMALS—Geoffrey Lapage—*Cambridge University Press*, 351 p., illus., $4.00 An outline of the general principles which govern the lives of parasitic animals with special reference to species which attack man or domestic animals.

PESTS OF SUGARCANE AND THEIR CONTROL—J. W. Ingram and others—*Govt. Printing Office*, USDA Circular No. 878, 38 p., illus., paper, 15 cents. Millions of dollars of damage are caused by these pests annually.

PHILOSOPHY OF NATURE—Jacques Maritain—*Philosophical Library*, 198 p., $3.00 A Thomist viewpoint.

PSYCHOANALYSIS AND POLITICS: A Contribution to the Psychology of Politics and Morals—R. E. Money-Kyrle—*Norton*, 179 p., $3.00. Based on psychiatric interviews in Germany of candidates to be selected to build up the new democratic Germany, the author has made this analysis of different types of political conscience.

PROCEEDINGS OF THE THIRTIETH ANNUAL MEETING—Roy W. Crum, Fred Burggraf and W. N. Carey, Jr., Eds.—*Highway Research Board*, 531 p., illus., $7.50. The text of papers presented.

REPORT ON CHINA—H. Arthur Steiner, Ed.—*American Academy of Political and Social Science*, Annals, September, 1951, 291 p., paper, $2.00. Report by experts to tell what kind of people the Chinese Communists are, what ideas they hold and how they are organized to keep their hold over the Chinese multitudes.

TALC DEPOSITS OF STEATITE GRADE, INYO COUNTY, CALIFORNIA—Ben M. Page—*California Division of Mines*, 35 p., illus., paper, 85 cents. Steatite is exceptionally pure talc suitable for the manufacture of high-frequency radio insulators.

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ASTRONOMY

# Eclipse May Solve Riddle

➤ THE NEXT total eclipse of the sun, which occurs on Feb. 25, 1952, will last for slightly over three minutes at maximum and may furnish the proof needed to decide just how hot are various layers of the sun's envelope.

Astronomers using radio telescopes to listen to hisses from the sun and those minutely examining the sun's fanned-out light have gotten conflicting figures for the temperature of the sun's outer atmosphere, Dr. J. P. Hagen and Fred T. Haddock of the Naval Research Laboratory, and Dr. Walter Orr Roberts of the High Altitude Observatory of Boulder, Colo., told members of the International Scientific Radio Union and the Institute of Radio Engineers meeting in Ithaca, N. Y.

Both groups agree that the sun's tenuous corona, the outer envelope conspicuous at the time of a total solar eclipse, is about a million degrees Centigrade. The sun's spectrum shows that metals such as iron, nickel and silicon have been raised to such extremely high temperatures that they are stripped of about half their electrons. But one group finds the temperature of the chromosphere, situated just above the intensely brilliant visible surface of the sun, three times that estimated by the other method.

Studies with radio telescopes indicate that the lower chromosphere is relatively cool, and that from there out to the tenuous corona the temperature rises rapidly. But optical data show great heat deep within the chromosphere, where the temperature reaches about 30,000 degrees Centigrade.

So the Naval Research Laboratory is planning an expedition to Khartoum, Anglo-Egyptian Sudan, to study the distribution of radio emission over the solar disk when the moon passes between us and the sun. They will take two radio telescopes with them. This eclipse expedition, third of its type, should be successful, rain or shine.

Simultaneously optical measurements of the sun will be made at Khartoum with a spectrograph made especially for this eclipse. With this instrument, the entire visible range of the spectrum will be photographed but in addition separate plates will record the red and violet ends of the spectrum in detail.

Science News Letter, October 20, 1951

GENERAL SCIENCE

# Dispersal A-Bomb Answer

➤ EFFECTIVE DISPERSAL of American production plants could prove the decisive deterrent to an atomic bomb attack on the United States, the BULLETIN OF THE ATOMIC SCIENTISTS said editorially in its October issue.

"Apathy, scepticism, or outright opposition to all radical civil defense measures still prevails in Congress and the public mind," it was charged.

In a future war the whole country will be the battlefield, and everyone a direct target of attack, the statement argued.

"Civilian unpreparedness now invites attack not less than military disarmament," it was stated, "but realization of this is slow to come to a nation accustomed to identifying war with sending of troops to fight overseas."

In an article, Rep. Richard Bolling, D. Mo., warned:

"The forceful overthrow of the government of the United States is a very real and present possibility. It could happen this month or next or on any day that Congress is in session and the President and other top officials of government are at their desks.

"In one blinding flash, the American people could be deprived of their President and all of his legal successors in office."

Rep. Bolling urged dispersal of governmental offices to outlying suburbs of Washington.

Goodhue Livingston, Jr., planning commissioner of New York City, in another article, predicted that socialism would follow a concerted A-bomb attack on the United States unless adequate dispersal of industries cut down the cost of replacing our production plant. He pointed out that an overwhelming cost would have to be borne by the Federal government and stated that this would destroy free enterprise.

Science News Letter, October 20, 1951

The true *yam* is a native of China.

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*STENCILS FOR use in decorating cakes are made of white cardboard and have "cut-outs" of birds, animals, cowboys and witches to make one-color pictures with confectioners sugar or whipped cream. A combination of colors may also be used. Stencils are cleaned for reuse with lukewarm water.*

Science News Letter, October 20, 1951

*TALKING BOOKS for the blind are sets of special, long-playing phonograph records, 12 inches in diameter and made of a thin, semi-flexible plastic material. Each disk has title and page number in braille. A printed book of average length requires 18 double-faced records.*

Science News Letter, October 20, 1951

*METAL PLATING on plastic objects of Bakelite or Vinylite is deposited in an electrolytic bath after the plastic article is dipped in a solution to give it a very thin coating of silver to make it electrically conductive. A thin layer of copper is then deposited electrolytically, followed by gold, silver or other metals.*

Science News Letter, October 20, 1951

*DEODORIZING FILTER, for use in a ventilating system, removes not only dust from the air but also absorbs the odors from the area served by the heating or cooling system. It uses a chemical impregnated in the porous fibers of a "throwaway" filter or sprayed onto an aluminum permanent filter.*

Science News Letter, October 20, 1951

*HOME-MADE DEVICE, to keep birds out of a garden, is an imitation snake such as shown in the illustration. It has a 12-foot cross-striped bamboo pole for a body and a heart-shaped aluminum head painted white with glaring black eyes. Balanced on the top of an upright, it rotates continuously, driven by an electric motor.*

Science News Letter, October 20, 1951

*HIGH SPEED CAMERA has a side lens attached to record the images on a cathode-ray oscillograph tube through the back of the film while the mechanical aspects of the subject are being photographed with the regular lens. It is designed to record the behavior of electro-mechanical devices.*

Science News Letter, October 20, 1951

*INFLATABLE STRIP seal, for use to hold pressurized air in a bubble-type airplane canopy, is made of rubber-coated special fabric in tubular form which fits in collapsed condition around the edges of the canopy. When filled with air it makes an air-tight seal.*

Science News Letter, October 20, 1951

*TRAFFIC SIGNAL standard, a portable type which can be tilted on its own two wheels and moved to where needed to meet emergency traffic conditions, has regular green, red and amber lights. Storage battery on which the lights operate is in the square base of the standard.*

Science News Letter, October 20, 1951

## *Do You Know?*

Animal *horns* have a bony core covered with a material called keratin; the antlers of a deer consist of a growth of connective tissue which becomes hardened with a deposit of calcium.

Sap of the macaranduba *tree* found in the Amazon country of Brazil is used as a drink and is said to be as good as milk; it is 34% butterfat, 4% sugar, 4% minerals and 58% water.

A *fish scale* can indicate to an expert the years the fish grew rapidly, when it spawned, its weight and length at any particular age and what it eats.

Liberia has an estimated 30,000,000 tons of the richest *iron ore* in the world; mining operations have recently begun and ore is now reaching the United States.


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